

# Buffalo National River



## Junior Ranger Program





## So, you want to be a Junior Ranger?

Junior Rangers explore the plants, animals, history and artifacts in the park. They learn the stories these things tell us about how they live in this ecosystem. Junior Rangers help protect the park by sharing their knowledge with others.

To earn your Buffalo National River Junior Ranger badge during your visit, please follow the instructions below.

### *Directions:*

1. Watch the park video or attend a ranger-led program.
2. Complete the map activity on page 3 and at least 4 additional activities. Pages with easier activities have a 🦔 while pages with more difficult activities have a 🦅 .
3. Junior Rangers help protect the park. Ask the ranger at the Visitor Center or Ranger Station for a service project.
4. Bring your completed booklet to the park Visitor Center or a Ranger Station. A ranger will sign and date your certificate, administer the Junior Ranger Pledge and present your badge.

☐ I watched the park video. The most interesting thing in the movie was

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☐ I attended Ranger \_\_\_\_\_'s program. He/she talked about  
Ranger's name

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The most interesting thing Ranger \_\_\_\_\_ said in his/her program was  
Ranger's name

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# Where Are You?

Buffalo National River flows through the mountains and plateaus of the Ozarks. In the 1960s, plans were made to dam the Buffalo River to create lakes, prevent flooding, and provide electricity. Many people wanted the Buffalo to remain a wild river. Congress designated the Buffalo the nation's first National River on March 1, 1972 to preserve it as a free-flowing river with no dams to block its flow.

The National Park Service cares for the special places saved by the American people so that we may all experience our natural and cultural heritage. The NPS now protects almost 400 sites.

**Activity:** Buffalo National River is drawn on the map below. Trace the route you traveled to visit the river. If you have visited other National Park Service sites, draw an **X** on the map where each of the other parks you have visited is located.



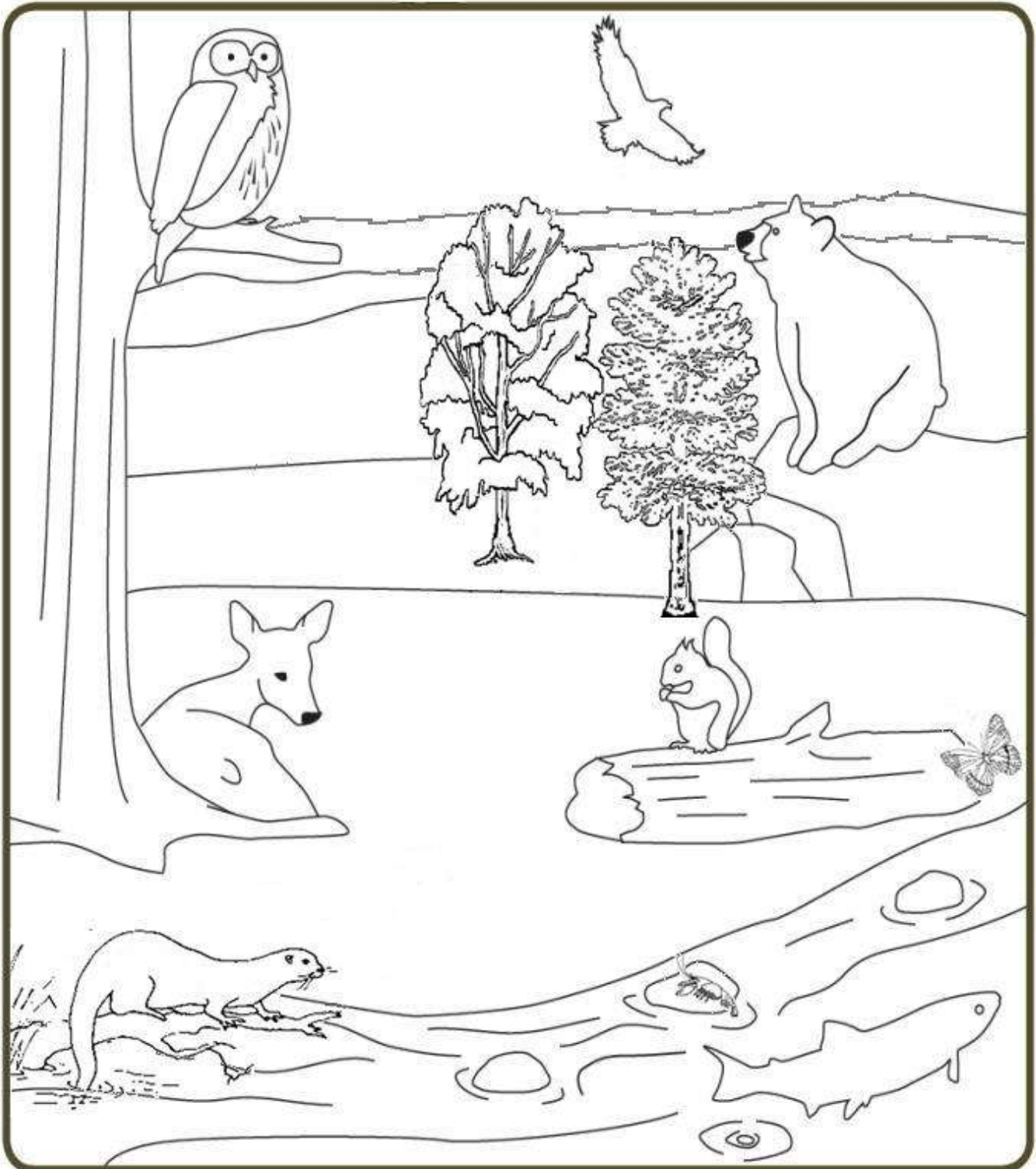


# Coloring Page



A variety of plants and animals may be found at Buffalo National River.

**Activity:** Color this page.





# Food Chains



Buffalo National River includes a variety of habitats: forests, fields and the river itself. Each plant and animal needs to find food, water, shelter and space in its habitat.

Fragments of plants decompose and become food for tiny organisms that then become food for larger animals. A food chain forms as each organism is consumed by the next. Many food chains connect to form a food web.

**Activity:** An example of a food chain is below. Create more food chains by drawing arrows from animals to their food. Do your chains connect to form a food web?

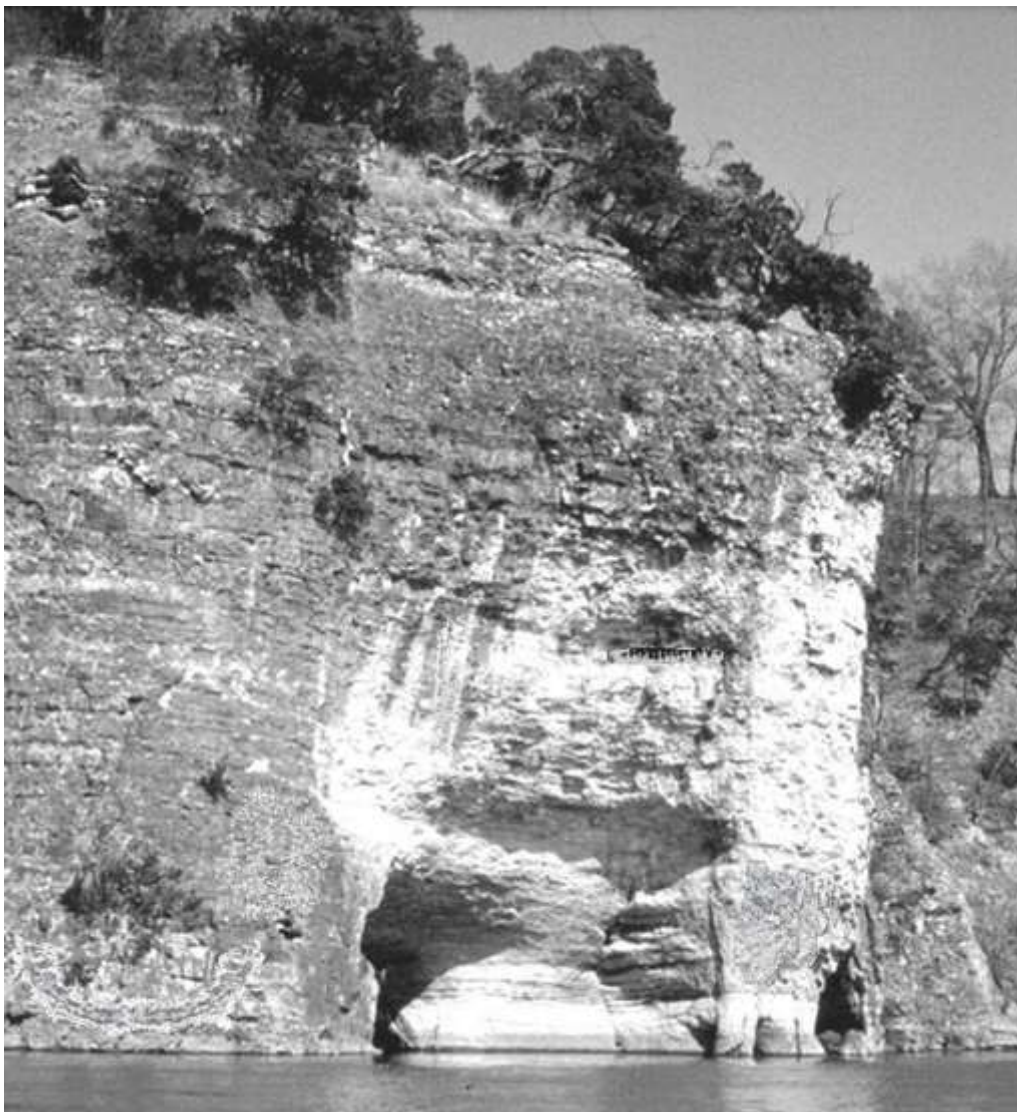






Buffalo National River flows through the Ozarks. These mountains and plateaus are made of rocks called limestone and dolomite. These sedimentary rocks formed when sea creatures died about 300 to 400 million years ago in a warm, shallow sea that covered Arkansas. Their shells fell to the sea floor and layers of these shells were pressed together over time to form the limestone and dolomite. Fossil remains of these animals may be found in rocks and bluffs along the river. Fossils, like everything else in the park, are protected and may not be collected.

**Activity:** The fossils pictured along the right side of this page are some that you may find in the park. They are hidden in the bluff. Circle the ones you find.



**Brachiopod**



**Crinoid stem**



**Cephalopod**



**Leptaena**



**Nautiloid**

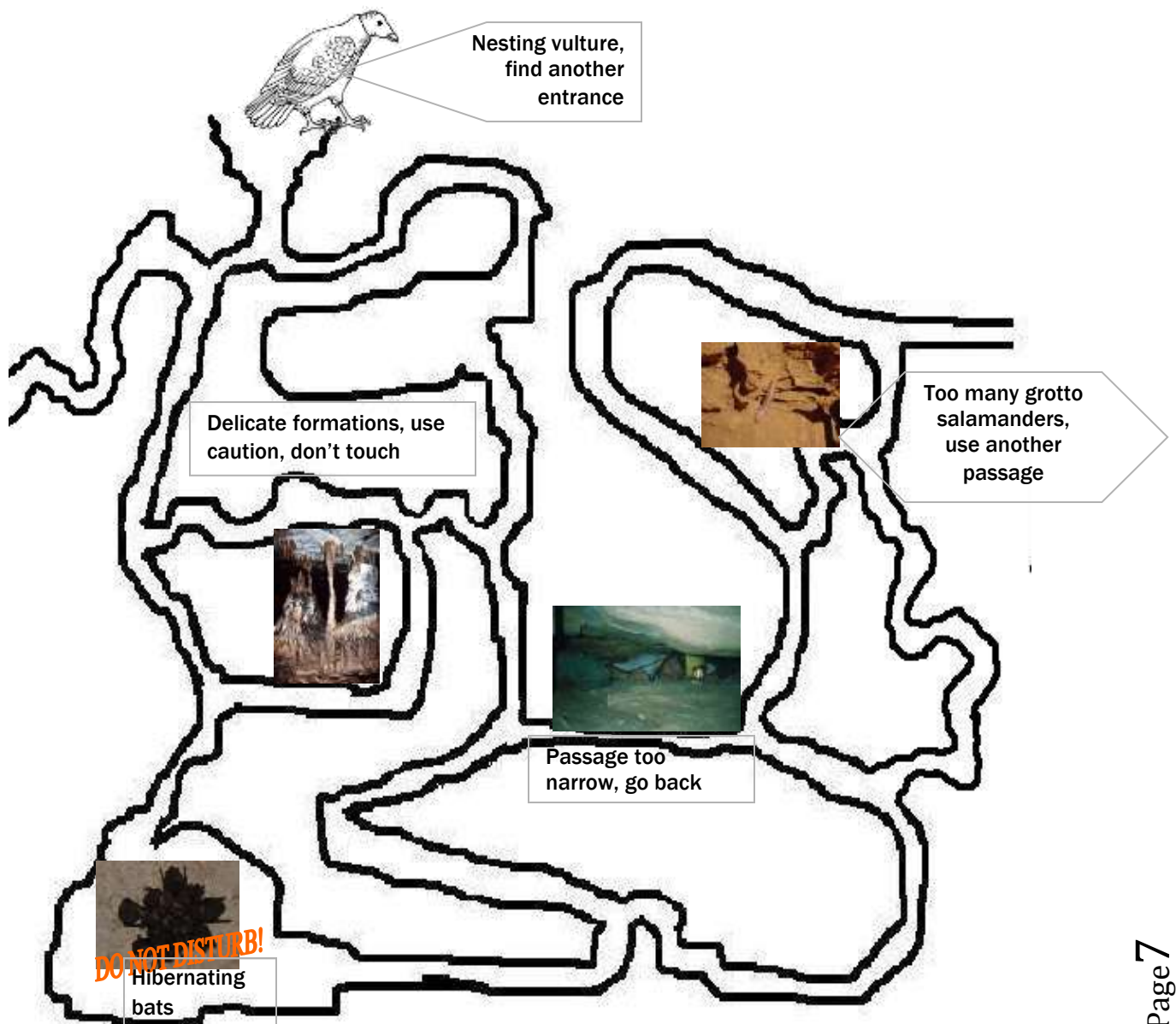


# Karst Maze



Limestone and dolomite are soluble. Water has been at work underground wearing away passages creating a karst landscape. This means caves, springs, sinkholes and disappearing streams are found here. By protecting the surface resources in the park, we also protect the underground resources. Caves provide a habitat for many unusual species, including bats, salamanders and blind cavefish. Cave formations grow very slowly and can be very fragile. If you break a stalactite, your great-grandchildren will probably still see the broken pieces.

**Activity:** Find an entrance and your way through the maze of cave passages. Be sure not to disturb wildlife or cave formations.





# Bats



Caves are winter homes for bats where they are protected from the elements. Many bats eat insects, which mean they have little or no food in the winter. Hibernation allows bats to sleep through the winter.

Many bats are currently dying from a disease called White-nose Syndrome. A white fungus covers the bats' noses and wings causing them to wake from hibernation before insects are available to eat.



**Activity:** Let's find out how many mosquitoes a bat might eat. Most bats eat about 50% (or  $\frac{1}{2}$ ) their body weight of insects each night. Use the equivalent measurements below to calculate the number of mosquitoes consumed.

1 ounce (oz.) = about 28 grams (g)

1 mosquito = 2.5 mg

1,000 milligrams (mg) = 1 g

2,500 mosquitoes = 1 g

## Example:

If the Tri-colored Bat (*Perimyotis subflavus*) ate nothing **but** mosquitoes, how many would it eat in 1 night?

bat weight =  $\frac{1}{4}$  oz. = 7 g

50% bat weight = 3.5 g

3.5 g bat weight = 8750 mosquitoes

Do the same calculations for a Big Brown Bat (*Eptesicus fuscus*) that weighs about  $\frac{1}{2}$  oz.

bat weight =        oz. =        g

50% bat weight =        g

       g bat weight =        mosquitoes

Other insects will weigh more or less than a mosquito, but it still means a lot of insects haven't been eaten by the more than 5,500,000 bats that have died in the U.S. since White-nose Syndrome was discovered in 2006. Scientists estimate that 5, 500,000 bats would consume 3,850,000 tons of insects in 1 year.



# People Along the River



People have been part of the Buffalo River Valley as early as 10,000 years ago. Native Americans lived in open camps and bluff-shelter caves. They lived in small family groups, hunting, fishing and gathering wild plant foods. Finds of a few bones, spear points, stone tools and other artifacts supply us with what little information we know about these early visitors.

The Osage tribe was the Native Americans still using the resources provided by the Buffalo River Valley when settlers began to travel into the Ozarks.

**Activity:** In the story below, some words are written in the Osage language. Use the key at left to translate and read the story.

KEY		
turtle		ᑭᑭ
beaver		ᑭᑭ.ᑭᑭ
buffalo		ᑭᑭ
deer		ᑭᑭ
eagle		ᑭᑭ.ᑭᑭ
bear		ᑭᑭ.ᑭᑭ.ᑭᑭ
blanket		ᑭᑭ.ᑭᑭ
one	(1)	ᑭᑭ.ᑭᑭ
two	(2)	ᑭᑭ.ᑭᑭ
good		ᑭᑭ.ᑭᑭ

If you would like to try to pronounce these Osage words or learn more, go to the Osage Nation website at [www.osagetribe.com](http://www.osagetribe.com).

Hunters of the Osage Nation moved quietly through the woods along the ᑭᑭ River.

They hoped to get meat to feed their families

through the winter. On a log in the river they saw a

ᑭᑭ . Some ᑭᑭ.ᑭᑭ

\_\_\_\_\_ cut trees for a lodge at the next river

bend. Then the hunters saw some leaves move. As

they waited ᑭᑭ.ᑭᑭ ᑭᑭ \_\_\_\_\_

walked into a clearing. The hunters were able to kill

them and take them back to their camp in the bluff

shelter. The men made a fire and cooked some

ᑭᑭ \_\_\_\_\_ meat for supper. The first hunter

kept watch for ᑭᑭ.ᑭᑭ.ᑭᑭ \_\_\_\_\_ while

the others settled down with their ᑭᑭ.ᑭᑭ

\_\_\_\_\_ to sleep. Just before sunset, the

watcher saw ᑭᑭ.ᑭᑭ ᑭᑭ.ᑭᑭ .

It was a ᑭᑭ.ᑭᑭ \_\_\_\_\_ day.

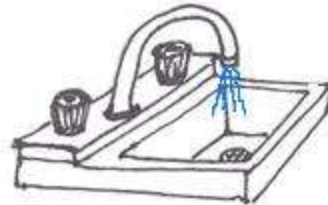




Evidence of the people who lived here is found everywhere along the Buffalo. Many of the bends in the river are named for the families who settled there, like the Tylers of Tyler Bend. You might see an anchor bolt remaining from a swinging bridge that washed away in a flood, or a stone fence along an abandoned field, or an old chimney surrounded in the spring by blooming daffodils. What do you think it would have been like to live in these mountains during those times?

Please leave the cultural landscape intact for all to enjoy. Do not carry cultural pieces of any kind away from the location where you found it. Some buildings, like Collier Homestead and Parker Hickman Farmstead, are preserved for you to explore. Other buildings, mines and caves are closed for your safety. Please stay out of them.

**Activity:** Draw a line to match the modern day item to the one from the past.



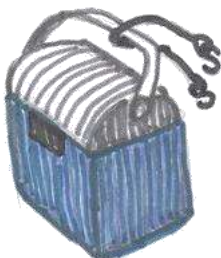


# Safety on the River



Many visitors explore Buffalo National River by canoe or kayak. Floaters are required to have a life jacket and children under 13 must wear it at all times in the boat. Also, coolers must be secured to the boat so they won't fall in the water and spill the contents. Glass and Styrofoam containers are prohibited near the river and all trash must be put in trash cans.

**Activity:** Circle the correct item in each pair to have a fun and safe float on the river.





# Ask A Ranger



Park Rangers and other employees do many different jobs to protect the park and our visitors. Find a ranger or other employee and ask them about their job. The interview questions are on page 13.



**Law Enforcement –**  
protects people and the  
park



**Firefighters –** conducts  
prescribed fires and puts  
out wildfires

**Maintenance –** cleans bathrooms  
and buildings, collects trash, mows  
grass, fixes roads, builds trails



**Search & Rescue –**  
helps visitors who  
get lost or hurt



**Interpreters –** help visitors  
understand the plants,  
animals, and history of  
the park



**Resource Managers –**  
conduct research to  
learn more about the  
park



**Activity: Interview a park employee.**

**1. What was the best day you've had while working in this park? Why?**

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**2. What is the funniest thing to happen to you at your job?**

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**3. What is the most difficult part of your job?**

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**4. What is the most interesting thing you know about this park?**

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**5. How does your job help the park?**

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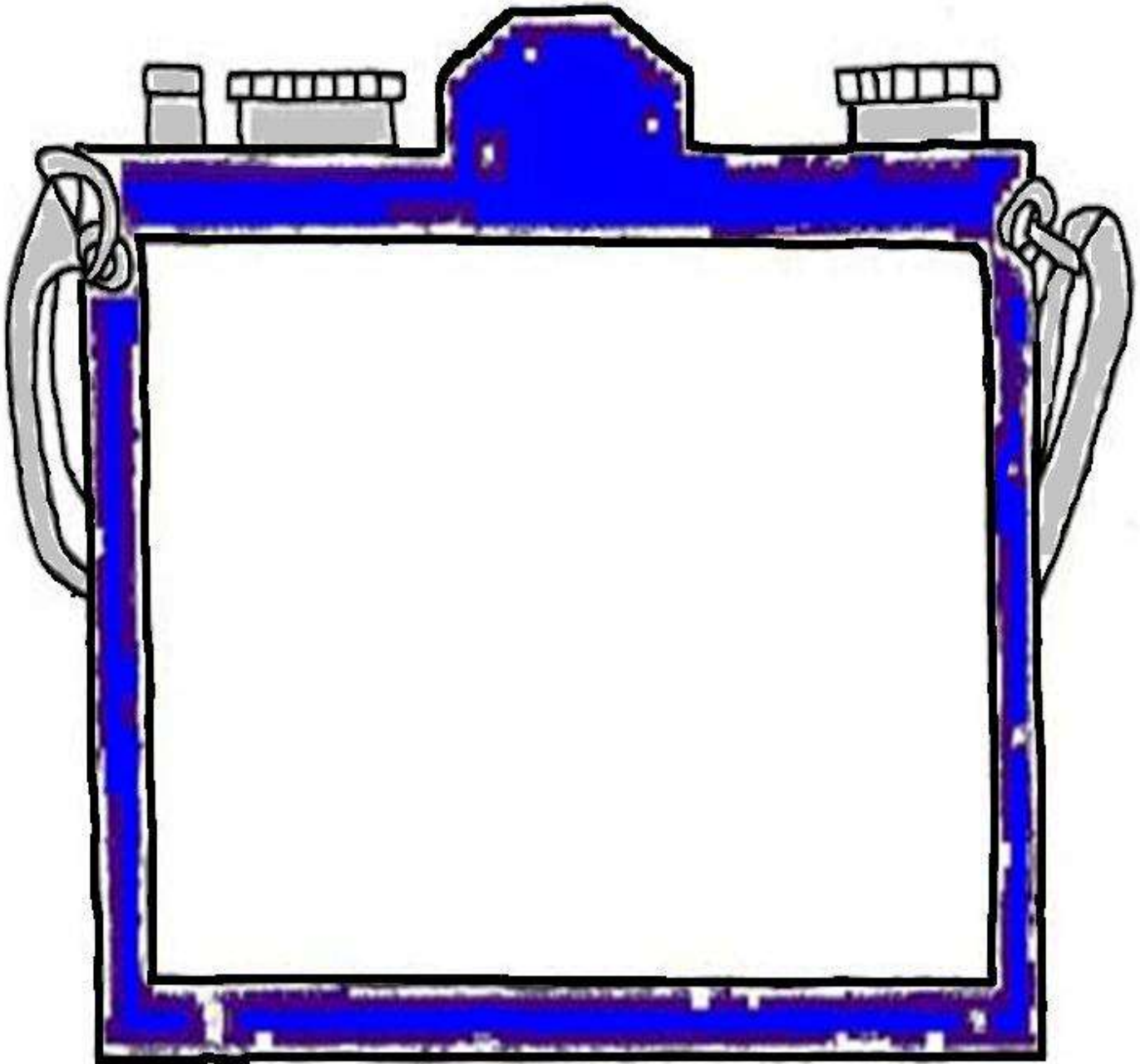


# *Take only pictures, leave only footprints.*

Help the Park Rangers protect and preserve the parks.



**Activity:** Draw a picture of your visit to Buffalo National River.



Artwork by \_\_\_\_\_

Your Name



# Puzzles



**Activity:** Complete either puzzle or do both if you really like puzzles.

N R E G N A R K R A P S M B U W D E  
S A G T C O C V U O E B B L F K O A  
N X T A E I L V U D A M J U P Y O Z  
A S N I T K X A I L N K A F L G W K  
K O B L O C C M F U T J J F E J G I  
E H N L K N E A R F Z U R S E Q O R  
G F O Z U N A I J S U E R H N V D E  
A R C M T T P L R E T B Q E O P R D  
S P E A E A S E P T F Z S L T O O B  
O W R E R S T R U A Q I U T S I O U  
L Y Q I D T T B A V R K L E E S F D  
K P A I O B G E C K F K V R M O H R  
D N D K E N K T A T I B A H I N S W  
N X J A I E V A C D Z R H H L I I C  
G H R M H I C K O R Y C I S R V F Q  
N O R E H O Z A R K E L K V N Y C S  
W A Z N E D R A G O N F L Y E S A B  
F Y P C U C F A W M I J C C T R J M

**Word Search:** find the words below.

BEAR	BLUFF SHELTER
BUFFALO	BUTTERFLY
CANOE	CAVE
DEER	DOGWOOD
DRAGONFLY	ELK
FARMING	FISH
HABITAT	HERON
HICKORY	HOMESTEAD
KARST	LIFE JACKET
LIMESTONE	NATIONAL PARK
OAK	OSAGE
OTTER	OZARK
PARK RANGER	POISON IVY
REDBUD	RIPARIAN
RIVER	SEDIMENTARY
SNAKE	TICK
VULTURE	

**Crossword:** use the clues below to complete the puzzle.

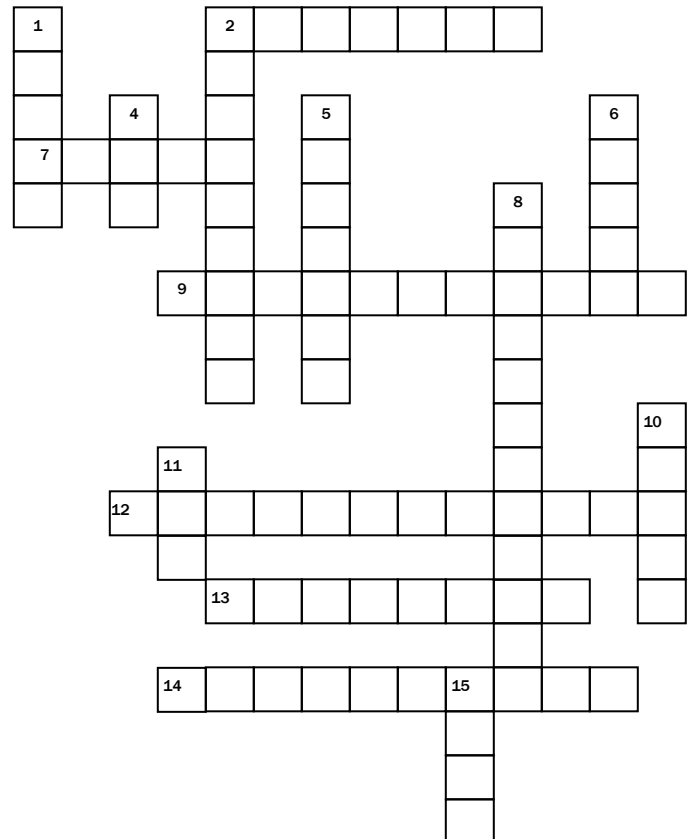
Hint: The answers to the crossword clues can be found in the word search list.

## ACROSS

- 2 where animals live
- 7 Native American tribe
- 9 layered rocks
- 12 type of cave used by Native Americans
- 13 habitat along the river
- 14 you must wear it in a boat

## DOWN

- 1 one way many people explore the river
- 2 how some settlers earned free land
- 4 tree that produces acorns
- 5 how some settlers made a living in the Ozarks
- 6 mammal seen playing in the river
- 8 place set aside for everyone's benefit
- 10 landscape with caves and sinkholes
- 11 animal reintroduced in the park
- 15 opening carved in rock as water dissolves it





# Glossary

**Artifact** – tool, weapon, vessel or object made by humans

**Bluff shelter** – rock overhang with enough space for people to live or camp

**Cultural landscape** – artifacts and evidence of human presence

**Decompose** – break into separate parts or rot

**Dolomite** – sedimentary rock made of the remains of ocean creatures

**Ecosystem** – a community of living organisms

**Equivalent** – equal

**Floaters** – people who canoe, kayak, raft or tube on the water

**Habitat** – place where a plant or animal normally lives

**Hibernation** – spending the winter sleeping or in a dormant state

**Homestead** – public land deeded to owner for no monetary payment but earned by working the land and building on it under the provisions of the Homestead Act

**Karst** – landscape marked by fissures, caves and sinkholes in limestone, dolomite or similar bedrock

**Limestone** – sedimentary rock made of the remains of ocean creatures

**Organism** – an individual plant or animal

**Ozark** – region of uplifted land forming plateaus in parts of Arkansas, Missouri and Oklahoma

**Plateau** – elevated tract of relatively flat land

**Prescribed fire** – fire is planned and ignited to return an area to a more natural habitat and/or to reduce fuel so natural fire won't burn too hot or too fast to control

**Riparian** – adjacent to or living on the banks of rivers

**Sedimentary** – rock formed by layers of sediment or small pieces of rock, minerals and/or plant and animal remains piled up over time and compressed



# *Congratulations!*

You have completed the requirements for the Buffalo National River Junior Ranger program. Take your booklet to a Visitor Center or Ranger Station. A ranger will check your work, present you with a badge and certificate at a pledge ceremony.

## *Junior Ranger Pledge*

I promise to explore and to learn about  
the wonders of the National Parks  
and share them with others.

I promise to protect and preserve  
Buffalo National River and all National Parks.



# *Junior Ranger*

## Certificate of Achievement

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has successfully completed  
the requirements to be  
an official Buffalo National River  
Junior Ranger

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Ranger Signature



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Date